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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/471,806	12/23/1999	MARTA M RAMBAUD		7978

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EXAMINER
BAYARD, EMMANUEL

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 09/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _01 July 2004_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,4-16,18-24 and 26-30_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1,4-16,18-24 and 26-30_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
   application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

This is in response to RCE filed on 7/1/04 in which claims 1, 4-16, 18-24 and 26-30 are pending.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-5, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith U.S. patent NO 6,430,671 in view of Twitchell et al U.S. Patent No 6,519,010 B2.

As per claim 1, Smith discloses a digital adaptive equalizer for a data path communication comprising: a programmable infinite impulse filter capable of being programmed to implement any of a plurality of transfer functions (see figs.5B , 13-15 element 508 and col.17, lines 40-67 and col.18, lines 30-67 and col.19, lines 1-67); a multiplexer function is considered as the claimed filter selector (see fig.5B element 510 and col.11, line 3 and col.21, line 61- col.22, lines 1-55) to select any one of said plurality of infinite impulse response filter transfer functions for said programmable infinite impulse response filter (element 104); a Finite impulse response (see fig.5B element 510 FIR and col.11, line 23) for receiving an output from said first programmable filter

However Smith does not teach said adaptive equalizer at least one of corrects for and equalizes impairments caused in a high-speed transmission.

Twitchell teaches said adaptive equalizer at least one of corrects for and equalizes distortions is functionally equivalent to the claimed (impairments) caused in a high-speed transmission (see col.5, lines 5-20)

It would have been obvious to one of ordinary skill in the art to implement the teaching of Twitchell into Smith as to impose a pre-distortion onto the information to compensate for the linear distortion caused by high power amplifier as taught by Twitchell (see col.5 lines 5-20).

As per claims 4 and 5, the equalizer of Smith includes a second digital filter adapts a transfer function to best fit an input data (see fig.5b element 510).

As per claims 11-13, Smith does include selection of plurality of any one of at least four sets of coefficients available to said first (see col.17-col.18)).

Claim Rejections - 35 USC ∋ 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6-10 are rejected under 35 U.S.C. 103(a) as being Smith U.S. patent NO 6,430,671 in view of Twitchell et al U.S. Patent No 6,519,010 B2 and in further view of Boyd et al U.S. Patent No 6,438,162 B1.

As per claim 6, Twitchell and Smith in combination disclose all the features of the claimed invention except a T1 communication path and an E1 communication path.

Boyd et al teaches a digital filter having a T1 communication path and an E1 communication path (see abstract and col.2, line 35).

It would have been obvious to one of ordinary skill in the art to implement the T1 communication path and an E1 communication path of Boyd into Twitchell and Smith so minimal configuration by the user could be implemented while using high-speed applications.

As per claims 7-8, the equalizer of Boyd does include twisted pair or coaxial cable (see fig.1 element 1 and col.3, lines 21, 51,). Furthermore implementing such cable into Twitchell and Smith would have been obvious to one skilled in the art as to provide output signal, which ideally has a waveform identical to that originally transmitted.

As per claim 9, the communication path of Smith would include a wireless medium so that any digital coded signal could be accurately equalized over free space.

As per claim 10, Smith teaches an analog to digital converter (see fig.2a element 206).

Claim Rejections - 35 USC ∋ 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-16, 18-24 and 26-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable Smith U.S. patent NO 6,430,671 in view of Simmons et al U.S. Patent No

6,195,414 B1.

As per claims 14 and 24, Smith discloses a method of digitally equalizing a

received data signal comprising: firstly filtering said received data signal using an infinite

impulse response digital filter (see figs.5B , 13-15 element 508 and col.17, lines 40-67

and col.18, lines 30-67 and col.19, lines 1-67); adaptively adjusting an output of said

infinite impulse response digital filter (see fig.5b element 406 and col.5, lines 33-36) a

Finite impulse response (see fig.5B element 510 FIR and col.11, line 23) is functionally

equivalent to the claimed <u>accurately match an inverse response</u> of a transmission channel

used to transmit said received data signal.

However Smith in does not teach filtering said received **T1/E1**.

Simmons teaches said received **T1/E1** (see fig.3 element 340 and col.5, line 53

and col.6, line 46)).

It would have been obvious to implement the teaching of Simmons into Smith as

to pass digital bit stream through digital interface, which suitably interfaces to a particular

source of the bit stream.

As per claim 15, the system of Smith would include detecting a periodic pattern

of said received T1/E1 as to accurately provide gain correction to the digital equalization

circuit.

As per claim 16, the system of Smith would include freezing said adaptive

adjustment to accurately provide gain correction to the digital equalization circuit.

As per claims 18 and 26 Smith does teach, a mux is considered as the claimed (selects and implements) (see fig.5B element 510 and col.11, line 3 and col.21, line 61-col.22, lines 1-55) one of a plurality of transfer function coefficient available for said digital filter.

As per claim 19, it would have obvious to one skill in the art to implement the step of setting an initial value to said plurality of transfer function into Smith as to enhance the system capability to accurately compensate the digitalized signal in the equalizer.

As per claims 20, 21 and 27, the system of Smith includes a second filter (see fig.5b, element 510).

As per claim 22, the system of see Smith would include adaptively adjusting coefficients for said finite impulse response to accurately provide gain correction to the digital equalization circuit as to obtain the distance feeling similar to the desired impulse response, the response time of the convolver should be as long as about 45 ms.

As per claim 23, the system of Smith would include a least mean square algorithm as to provide the best mean square fit to a compensated frequency response which is flat to obtain the distance feeling similar to the desired impulse response, the response time of the convolver should be as long as about 45 ms.

As per claims 28 and 29 the system of Smith includes a FIR (see fig.5b element 510).

As per claim 30, the system of Smith would include a least mean square algorithm to provide the best mean square fit to a compensated frequency response which is flat to

obtain the distance feeling similar to the desired impulse response, the response time of

the convolver should be as long as about 45 ms.

Conclusion

The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Lesthievent et al U.S. Patent No 6,125,155 teaches a broadband digital filtering..

Kishimoto U.S. Pub 2002/0030762 A1 teaches a video processing apparatus.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Emmanuel Bayard whose telephone number is 571 272

3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM)

Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-

9306.

Information regarding the status of an application may be obtained from the

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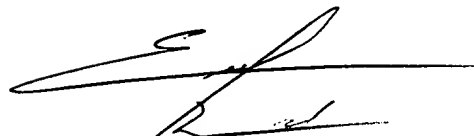
Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2631

9/4/04

EMMANUEL BAYARD
PRIMARY EXAMINER